Indian Institute of Technology, Bombay

CS101 Course Project

Autumn Semester 2014

Lab Group-07

Library Management System

Software Requirements Specifications

Team Members

Chaitanya Prasad

Batchala Gowtham

Abhinav Sonkar

Mentor: Shudhatma Jain

Table of Contents

- Student

- Librarian

- Books

3. Future Scope

Introduction

Purpose

The purpose of this document is to specify the various requirements for the CS101 Course Project. It also describes the various functionalities included in the project.

This document is intended for:

- Project Team
- End User(s)

Technological compatibility

a. Operating System

The software developed runs on Windows Operating System. Software portability wasn't considered as it is beyond our course and level of understanding.

b. Programming Language

We have used the programming language, C++ (GNU C/C++Compiler) to develop this software.

c. Interface

The program runs completely on the Windows Terminal and hence, a Character User Interface (CUI) is used. Due to lack of time, learning and using a GUI wasn't considered. Since it runs completely on a Terminal, adequate importance was given so that the commands are absolutely clear and is as user-friendly as possible. In this way, it is ensured that the user doesn't miss a GUI.

References

The Internet was our main source of reference and we used it extensively to learn new features of C++ and how we can implement them in this project. Google, Wikipedia, C++ Resources Network, CPlusPlus.com among others were widely used.

Project Description

Overview

The aim is to create a self-sustained application which can manage databases of the books available in the library and also the members and librarians of the library. The application should be capable of maintaining a record of books issued by each member, and also processing requests such as reserving a book or requesting a new book into the library. The application should be as user-friendly as possible, and should be as comfortable to use for any user as is a GUI based application.

User Interaction

    a. Student

A student can log in to the library system using his unique roll number and a password set by him. This allows him to access all the functions available to him in the program.

    b. Librarian

A librarian can log in to the library system using his unique employee

number and his password. This allows him to access the functions available to him.

c. New User

A new user can easily register for the library, and can thus access all the facilities available to any user. He only needs to provide his roll number and a password.

Data Storage

a. Arrays

Numerous arrays have been used in order to store data of similar kind, such as an array of members of library or books in the library. Using arrays makes the job of storing large amount of similar data much easier than declaring separate variables for each.

b. Files

To store data, data has to be stored in external files. This data can be thus easily accessed later whenever required. Large amounts of data such as books of the library need to be efficiently stored somewhere, so that even when the program is not working, the data is kept safely.

c. Integrating arrays and files

The data stored in the external files is read and then sorted out in a fixed fashion, and later stored in the arrays of various types. Later during compilation, these arrays are manipulated by the functions of the program, and then are stored back to the same external files for future usage.

Data Organization

a. Students

The structure "user" stores the basic data of a member of the library i.e. a student of the college. This structure stored data like roll number, password and the book issued by the user. An array of users is created to ensure storage of large number of users.

b. Librarians

The structure "librarian" is designed to store the employee number and password of each librarian. An array is created to store multiple entries.

c. Books

The "book" structure stores the name, author, ISBN of a book. It also stores the total copies of the book in the library, and the number of copies left for issuing.

Future Scope

- To make the existing system even more efficient.
- To create a GUI interface for the user to make the system more easy to handle.
- To add a time function which can also catch the users who have not returned their book for a long time, and calculate their fine.
- To create a system where a user can issue multiple books at a time.
- To add other items such as DVDs, documentaries etc. apart from just books to the database.